INSTREAM FLOW PILOT
STATUS REPORT- OCTOBER 5, 2005

NH Rivers Management and Protection Program
New Hampshire Department of Environmental Services
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A. PROGRAM-WIDE EVENTS

1. Water Use Report 2003

The Instream Flow Rules (Env-Ws 1903.02) require the Department to estimate water use versus stream flow. The assessment compares average monthly aggregate water use and average monthly stream flow; and for each designated river without established protected instream flows, estimates the month(s) and identifies the location(s) not in compliance with the General Standard. The General Standard is a set of reference levels that allows a more equal comparison of water use between the different sized rivers. The 2003 Annual Water Use versus Stream Flow Report was posted to the website in May 2005 http://www.des.state.nh.us/rivers/instream/. Part or all of the following Designated River segments exceeded the General Standard during 2003 (months exceeded):

- Isinglass (All 12 months)
- Contoocook, main stem (February, July, August, September and November)
- Exeter (July, August, September)
- Lamprey (July, August, September)
- Souhegan (July, August, September)
- Ashuelot (July)
- Contoocook, North Branch (July)
- Merrimack, Lower (July)
- Piscataquog, main stem and Upper and Lower Branches (July)
- Saco (January)

Designated River segments that did not exceed the General Standard in 2003 were:

- Cold
- Connecticut
- Merrimack (Upper)
- Pemigewasset
- Piscataquog (Middle Branch)
- Swift

2. Funding Accepted

The NOAA grant awarded in October 2004 was accepted by G&C February 2005. The grant provides funds for the Lamprey Pilot Projects consulting work on the Protected Instream Flows and Water Management Plan, and for Department administration of the Program.

B. SOUHEGAN RIVER PILOT PROJECT

1. ISF Committees

Senator Carl Johnson replaced outgoing Senator Russell Prescott on the Souhegan Technical Review Committee (TRC). Senator Sheila Roberge replaced Senator Andrew Peterson and Representative Chris Christensen replaced Representative Pierre Bruno on the Water Management Planning Area

Advisory Committee (WMPAAC). Jay Chrstal, owner of ChemServe Inc. was appointed to represent businesses within the Planning Area. Pierce Rigrod resigned from the WMPAAC because he had moved out of the watershed. He represented conservation commissions and has not been replaced yet. The Souhegan TRC will meet again in November 2006 to review and comment on the Target Fish Community and the results of the study on groundwater interactions with surface water. The next WMPAAC meeting is not yet scheduled. Meeting information for the Souhegan committees is available on the website at http://www.des.state.nh.us/rivers/instream/souhegan.htm.

2. Souhegan Protected Instream Flow Study and Water Management Plan

UNH is responsible for conducting the Protected Instream Flow Study and developing the Water Management Plan. UNH's proposal for the Protected Instream Flow Study and Water Management Plan can be read at http://www.des.state.nh.us/rivers/instream/pdf/April1504CoopAgree.pdf. Completed last year were Task 1 (development of the IPUOCR list), Task 3 (on-stream survey of IPUOCR entities), and Task 4 (report describing the IPUOCRs and the assessment methods for each flow-dependent entity). In progress were tasks 2, 5, 8 and 9 discussed below. Task 2 is now complete except for review and approval by the Souhegan TRC. Low flows did not occur during last year's field season (2004) and Task 5 still requires a survey under a specific flow for the final round of measurements.

Task 2 Groundwater interactions with surface water These assessments are complete and results will be presented to the Souhegan TRC for approval in late October or early November. The Souhegan TRC meeting discussing the results will be held when the Target Fish Community definition is complete (part of Task 5). This task included sending surveys to all groundwater users, interviews conducted with groundwater users, GPS surveys of wells and nearest riverbanks, induced recharge calculations for all users, and WHPA modeling, which was done at two sites.

Task 5 Protected Instream Flow Assessments Field surveys began in August 2004. Field work had to be extended into 2005 because of wet weather conditions. One final round of measurements must still be done at intermediate flow levels. Completed were the high-flow overbank surveys and model verification surveys. Electrofishing and scuba were used for model verification surveys at 200 stations. Recreational surveys were scaled back because most recreational concerns occur during medium to high flows. A draft Target Fish Community has been prepared and reviewed by fisheries experts from NH F&G, MA F&W, US F&W, EPA and DES Biomonitoring Section. Two TFCs are being developed because of the different characteristics of the upper and lower Souhegan. The draft final TFC will be reviewed by the state and federal agency fisheries experts at a meeting October 3. The draft final will then be sent to the Souhegan TRC in October for final approval before being incorporated into the MesoHABSIM model. This is a critical step in completing Task 5's PISF assessments. Note that the town of Merrimack did not want to take over Pennichuck's dam on the Souhegan and that dam will probably be removed.

Task 8 Assessment of Water Use with the Established PISF Concurrent stream flow measurements were made at ten stations and the data was regressed against the stream gage. This data was used to generate the high, low and normal flow years that the PISF must be compared to and to create the long-term hydrograph with 30 years of record for the Continuous Under Threshold analysis of the MesoHABSIM results. Note that the long-term hydrographs showed that the Souhegan 7Q10 values have been declining despite precipitation data that indicates NH precipitation values have increased over time. There may be a correlation with increased evapo-transpiration because of fields growing up to forests, a response to land use (increased impervious surface), or a return to more natural conditions as dam management for mill power during summer months is reduced.

Task 9 Development of WMP Sub-Plans One Multi-Criteria Decision Analysis (MCDA) survey was completed previously. The Multi-Criteria Decision Analysis surveys and interviews with AWUs and ADOs will be repeated as management alternatives are developed for sub-plan development.

ESTIMATED TIMELINE
For Souhegan River Instream Flow Protection Pilot Project

March 2006	Task 5 – PISF Assessments and Proposed PISF Report
April 2006	Task 6 – PISF Public Hearing (joint)
April 2006	Task 7 – PISF Report for the Souhegan River
	DES establishes the Protected Instream Flow for the Souhegan
April 2006	Task 8 – Assessment of Water Use with the Established PISF
May 2006	Task 9 – Development of WMP Sub-Plans
June 2006	Task 10 – Proposed WMP
June 2006	Task 11 – WMP Public Hearing (joint)
July 2006	Task 12 –WMP Report for the Souhegan
	DES adopts Water Management Plan for Souhegan

C. LAMPREY RIVER PILOT PROJECT

1. ISF Committees

The Lamprey Pilot Program began with the creation of the advisory committees. The Technical Review Committee and the Water Management Planning Area Advisory Committee have been convened. Richard Wellington, one of the three members representing local government in the planning area, resigned from the Lamprey WMPAAC and has not yet been replaced. The next Lamprey WMPAAC meeting is October 7, 2006 to review and approve the final list of protected entities. The list will define the assessments required to determine the protected instream flow for the Lamprey. The next TRC meeting is not yet scheduled. Committee meeting information for is available on the website at http://www.des.state.nh.us/rivers/instream/lamprey.asp.

2. Lamprey Contractor Hired

One of the first tasks of these committees was to choose members for the Selection Committee to hire a contractor for the Instream Flow Protected Instream Flow Study and Water Management Plan. The selection of a contractor was conducted using the same process as with the Souhegan Pilot. The committee was made up of two members of each committee and two staff members from the Department. The Department solicited qualification packages beginning July 30, 2004from over fifty engineering and natural resources consulting firms. The Selection Committee met March 22, 2005 to shortlist four firms from the seven firms who submitted qualifications packages.

- University of New Hampshire / University of Massachusetts / Normandeau Associates, Inc.
- Kleinschmidt Energy & Water Resource Consultants / GZA GeoEnvironmental, Inc. / ESS Group, Inc. / Hydrologic Services, Inc.
- Gomez and Sullivan, P.C. / Cornell University / University of New Hampshire
- ENSR Environmental; Wright-Pierce, Woodlot Alternatives; Eastern Research Group, Tufts University

For use in preparing the proposals, the Department completed a preliminary list of Instream Protected Uses, Outstanding Characteristics, and Resources (IPUOCR) report (October 7, 2004) and included it in the Request for Proposals mailed February 10, 2005. Three proposals were submitted (ENSR declined) by the March 10 deadline and the three consulting teams were interviewed by the Selection Committee March 28, 2005. The UNH/NAI/UMass team was selected unanimously to conduct the Lamprey ISF project and the choice approved by Commissioner Nolin in April. G&C approved the contract July 13, 2005. This approval date was a delay of two months from the schedule submitted with the proposal resulting in the loss of much of the 2005 field season. The majority of the field will be conducted in 2006. Normandeau Associates (NAI) is the lead firm responsible for conducting the Protected Instream Flow Study and developing the Water Management Plan. The Lamprey proposal for the Protected Instream Flow Study and Water Management Plan can be read at http://www.des.state.nh.us/rivers/instream/pdf/UNH-UMASS-NAI.pdf.

3. Lamprey Protected Instream Flow Study and Water Management Plan
Work tasks have begun under the contract approved by G&C July 13, 2005. Tasks 1 and 3 (development of the IPUOCR list and the on-stream survey of IPUOCR entities) are essentially completed. The on-stream survey (Task 3) was conducted in August and October. The draft IPUOCR (Task 1) is complete and will be reviewed October 7 by the Lamprey WMPAAC before being made final. The final IPUOCR list will be incorporated into the report for Task 4. Task 4 identifies the Instream Flow assessment methods that will be used to address the flow-dependent IPUOCRs.

Task 4 (Report with the final IPUOCR list and describing the assessment methods for each flow-dependent entity). The NAI team will use MesoHABSIM method for assessing flows for fish. The NAI team was selected because of their proposal to apply this method and the proposed innovations that will be tested. An airphoto-based survey method for collecting model input data will be tested during the Lamprey project. This survey method would reduce costs of field surveys and increase the survey efficiency especially for larger rivers. Other methods for the remaining flow-dependent entities will be described in the Task 4 report. Development of the Task 4 report has begun and the report is expected to be ready for review by the Lamprey Technical Review Committee (TRC) by late October to early November 2005.

Preliminary work on Task 2 and Task 9 has been done. Three rounds of concurrent flow measurements have been taken under the assessment of groundwater influences on surface water task (Task 2). Gathering water use information on Affected Water Users for the Water Management Sub-Plans (Task 9) has also been begun by NAI. Completion of the project is expected one year later than last year's expected completion date because most of the 2005 field season was missed.

ANTICIPATED TIMELINE
For Lamprey River Instream Flow Protection Pilot Project

March 2006	Task 2 - Groundwater
November 2005	Task 4 – Assessment Methods Report
November 2006	Task 5 – PISF Assessments and Proposed PISF Report
December 2006	Task 6 – PISF Public Hearing (jointly with legislature)
February 2007	Task 7 – PISF Report for the Souhegan River
	DES establishes the Protected Instream Flow for the Lamprey
March 2007	Task 8 – Assessment of Water Use with the Established PISF
April 2007	Task 9 – Development of WMP Sub-Plans

May 2007	Task 10 – Proposed WMP
June 2007	Task 11 – WMP Public Hearing (jointly with legislature)
August 2007	Task 12 –WMP Report for the Souhegan
	DES adopts Water Management Plan for Lamprey

D. ADDITIONAL TASKS FOLLOWING ADOPTION OF THE LAMPREY AND SOUHEGAN WATER MANAGEMENT PLANS

The Pilot Program will be completed by the establishment of Protected Instream Flows and adoption of Water Management Plans on the Lamprey and Souhegan Rivers. One year following the WMP adoptions, THE DEPARTMENT will hold a public hearing followed by a comment period. At the end of this period The Department and the SB330 committee will present their final reports to the governor and the legislature by December 1, 2008.

PILOT COMPLETION DEADLINES (From Laws of 2002, Chapter 278 as revised by Laws of 2003, Chapter 319 (HB4 – State Budget))

By April 1, 2007	**DES report to legislature (PISF and WMPs)**
By June 1, 2007	**DES/legislative committees hold public hearing(s) jointly**
By October 1, 2007	**Lamprey and Souhegan PISFs and WMPs adopted**
By October 1, 2008 or one year following WMPs adoption	**DES public hearing and 30-day comment period**
By December 1, 2008	**DES final report to legislature**
By December 1, 2008	**SB 330 report to governor and legislature**